

Subjective poverty thresholds in the Philippines*

Carlos C. Bautista

University of the Philippines College of Business Administration

Subjective poverty thresholds in the Philippines are derived from a 2003 household perception survey data set. The thresholds are computed using data on the minimum income question and actual income from the survey of 1,200 households. The estimated thresholds are shown to be much higher than the official poverty thresholds and more in line with the United Nation's millennium development goal threshold of US\$ 1 per day.

JEL classification: I32

Keywords: Asia, Philippines, self-rated poverty, subjective poverty line, minimum income question, millennium development goals

1. Introduction

There is a wide consensus among academics and policymakers that the most pressing problem today is global poverty. The United Nations (UN) in its Millennium Development Goals (MDGs) lists the elimination of extreme poverty and hunger as its first goal.¹ The first target of this goal is to “halve, between 1990 and 2015, the proportion of people whose income is less than \$1 a day”, which is a good benchmark upon which poverty reduction programs can be evaluated. In the fight against global poverty,

*This article is part of a research project on “Poverty, Hunger, and Deprivation in the Philippines” supported by a grant from the Office of the Vice Chancellor for Research and Development, University of the Philippines Diliman, Quezon City 1101, Philippines. The author claims full responsibility for all the errors in this paper.

¹See www.un.org/millenniumgoals/.

country-specific analysis of poverty is needed to best address the problem at a local level.

In the Philippines, while more attention to the problem has been given in recent years, data and methodological problems have not given a clearer poverty picture (see Schelzig [2005]; World Bank [2001]). The official family income and expenditure survey used in poverty research is undertaken once every three years, and the latest in 2003 shows a threshold of Php 12,457 per capita per year based on the food-cost ratio approach to poverty measurement. At that year's exchange rate of Php 54 to a dollar, the threshold amounts to US\$ 0.64 per day for all households—an amount significantly less than the MDG threshold of one dollar a day. This means that the official estimate of the number of persons in poverty is much less than the estimate that uses the MDG threshold.

This article provides a view of poverty in the Philippines that is different from those generated from government statistics. It attempts to determine poverty thresholds that are based on the individual's subjective assessment of his or her own household's welfare. This information is derived from a household perception survey data set collected by a private nonprofit research institution, the Social Weather Stations (SWS), in the first quarter of 2003. The data set covering 1,200 households nationwide contains three variables that can be used to determine the subjective poverty line (SPL): (a) the actual net monthly household income, (b) the size of the household, and (c) the answer to the minimum income question (MIQ).² The next section discusses the relation between the MIQ and the SPL. The third section provides a description of the data used and presents the empirical results. The last section offers some concluding remarks.

2. The MIQ and the SPL

One of the many measures of poverty is the SPL developed in Goedhart et al. [1977]. The estimation of the SPL relies on the perception of the survey respondent regarding his or her own household's economic status or that of a hypothetical household. The MIQ from which the SPL is derived has had many variations. An example is the question from the 1979 Income Survey Development Program (ISDP) Research Panel as cited in Danziger et al. [1984]:

²Actual income data are gathered by SWS only once during the first quarter of each year, although they conduct regular quarterly surveys.

Living where you do now and meeting the expenses you consider necessary, what would be the very smallest income you (and your family) would need to make ends meet?

This variant inquires directly into a family’s own economic state. Another variant used in the Gallup Poll and also cited in the same paper, asks the respondent about a hypothetical family with characteristics that may be different from that of the respondent:

What is the smallest amount of money a family of four needs to get along in your community?

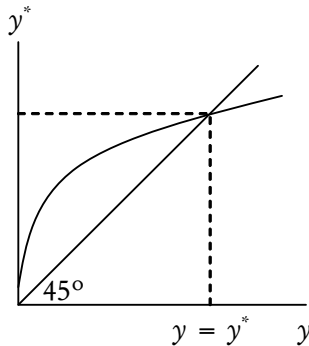
Danziger et al. [1984], in providing an economic justification for the MIQ, states that given his or her income and household size, the response to the MIQ could be interpreted as the respondent’s best assessment of his or her utility level implied by the question. Hence in deriving the SPL, the answer to the MIQ, u , is assumed to be a function of actual income, y , and household size, h :

$$u = u(y, h) \tag{1}$$

The SPL of a household size group, y^* , is defined as the solution to the above equation:

$$y^* = u(y^*, h). \tag{2}$$

The SPL is shown graphically for a given household size:



The solution implies that for a given household size, the respondents with just enough income to meet the required minimum have an accurate perception of the true poverty line. The idea behind this is that the others in the household size group who have significantly higher or lower incomes

are not in the best position to make a correct assessment of the poverty line and therefore would most likely overestimate or underestimate the line. Hence less weight is assigned to their opinion compared with those whose incomes are nearer the true poverty line. SPLs for each household size group can be derived by estimating equation (1) by ordinary least squares (OLS) and using the estimated parameters in the solution given by equation (2).³ SPLs derived in this manner have been computed for some developed economies using either the MIQ or the more complicated income evaluation questions where several choices are presented to the respondent (see Hagenars and Van Praag [1985]; Hagenars and de Vos [1988]; Kapteyn, Kooreman, and R. Willemse [1988]).

3. Data description and empirical results

In the SWS survey used in this study, the respondents are asked to rate themselves first in terms of their general economic situation before the MIQ is asked. For the self-rated poverty question, the answer is elicited by showing a card where the following are written: (a) not poor, (b) on the line, (c) poor. The respondent is requested to pick from these choices to answer the question “Where would you place your family in this card?” It is interesting to note that in this first quarter 2003 survey, 60.33 percent of the 1,200 respondents rated themselves as poor.⁴

Next, depending on his or her response to the first question, the respondent is asked about either the MIQ that refers directly to his or her family’s welfare or the MIQ that is needed by a hypothetical family:

If poor: In your opinion, how much money would your family need for home expenses each month in order not to be called poor anymore?

If not poor/on the line: For a family as large as yours but poor, how much money do you think would it need to spend each month for home expenses in order not to be considered poor anymore?

³The note in Table 3 shows the econometric specification of equation (1) and the derivation of the corresponding SPLs.

⁴This may be compared with the 2003 official poverty incidence figure of 24.4 percent. Up-to-date information on self-rated poverty in the Philippines can be found in the SWS website: www.sws.org.ph. The sampling and statistical techniques used in the survey are found in SWS [2003]. See Mangahas [1995, 2004] for a detailed discussion on self-rated poverty in the Philippines.

It should be noted that these questions are variations of the questions in the ISDP panel and the Gallup poll discussed in the previous section. Table 1 shows some descriptive statistics of actual nominal monthly income and the answer to the MIQ and their logarithms. The number of observations is less than 1,200 because of nonresponses. Median actual monthly income is Php 5,000 while the median MIQ is Php 9,000. Figure 1 shows a positive and approximately linear relationship between the logarithm of MIQ against the logarithm of income. These variables and the logarithm of household size are used in the OLS regressions from which the subjective poverty thresholds are computed.

Table 1. Descriptive statistics

	INCOME*	LOG(INCOME)	MIQ*	LOG(MIQ)
Mean	9,968	8.63	10,719	8.97
Median	5,000	8.52	9,000	9.10
Maximum	250,000	12.43	80,000	11.29
Minimum	500	6.21	400	5.99
Std.Dev.	16,675	1.00	9,565	0.80
Skewness	6.58	0.35	2.61	-0.08
Kurtosis	68.15	3.29	12.98	3.06
Observations	1090	1090	1134	1134

*Monthly, nominal pesos.

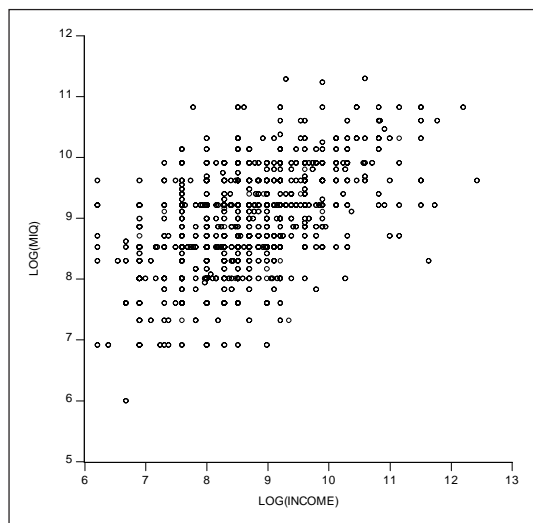


Figure 1. Scatter plot of income and MIQ (in logs)

Table 2 shows the OLS estimates of equation (1) in log-linear form using rural, urban, and full samples. All estimated coefficients are correctly signed and are statistically significant. The standard errors reported are Newey-West heteroscedastic-autocorrelation-consistent (HAC) standard errors. Table 3 reports the poverty threshold levels implied by these estimates by

Table 2. OLS estimate of equation (1) dependent variable: Log(miQ)

	Rural	Urban	Full sample
Constant	5.845 0.315	5.524 0.333	5.320 0.228
Log(Income)	0.307 0.037	0.377 0.036	0.386 0.025
Log(Household size)	0.235 0.066	0.180 0.056	0.197 0.044
\bar{R}^2	0.143	0.288	0.265
No. of observations	571	478	1049

Numbers underneath estimates are Newey-West HAC standard errors.

Table 3. Subjective poverty thresholds* 2003 (pesos/month per household)

Household size	Rural	Urban	All
1	4,581	7,047	5,811
2	5,793	8,607	7,260
3	6,646	9,676	8,270
4	7,326	10,513	9,071
5	7,901	11,212	9,745
6	8,404	11,818	10,333
7	8,854	12,355	10,857
8	9,264	12,840	11,333
9	9,641	13,284	11,770
10	9,991	13,694	12,175
11	10,319	14,076	12,553
12	10,627	14,434	12,909
13	10,919	14,771	13,245
Equivalence scale elasticity	0.34	0.29	0.32

*From the OLS equation used in Table 2, $\log(miQ) = a_1 + a_2 \log(income) + a_3 \log(bhs) + \varepsilon$, the rural, urban and full sample thresholds for each household size above can be computed using the estimated parameters:

$y^*(bhs) = \exp\left[\frac{a_1 + a_3 \log(bhs)}{1 - a_2}\right]$ where $bhs = 1, 2, \dots, 13$. (See also the discussion on equation [2], which is the solution to equation [1], in the text.)

household size. They range from a low of Php 4,581 per month per household in rural areas for a household of size-one to a high of Php 14,771 in urban areas for a family of 13. Note that on a per capita basis, the latter is lower than the former. As in Van Praag and Van der Sar [1988], household equivalence scales can be derived from these poverty thresholds. Assuming a five-person household as the reference unit, the scales range from 0.58 to 1.38. The last row shows the household equivalence scale elasticities.

The household-size-weighted averages of per capita monthly thresholds are computed and are shown in boldface in Table 4. For reference, the official per capita monthly thresholds are also shown in boldface in the lower panel of the Table and are observed to be much lower than the thresholds computed in this study. In all samples, this study obtains poverty thresholds exceeding US\$ 1 a day. The thresholds are US\$ 1.12 and US\$ 1.62 for the rural and urban areas. It is US\$ 1.39 for the full sample. These estimates, especially the rural threshold, appear to be much more in line with the MDG threshold. The implication of these results is that the official estimate of the proportion of the Philippine population in poverty is much less if this study's or the MDG's threshold is used as the basis.

Table 4. Subjective poverty thresholds, 2003, (per capita)

	Rural	Urban	All
Weighted average of 13 household sizes*			
Monthly (pesos)	1,820	2,622	2,256
Daily (pesos)	60.65	87.40	75.20
\$/day	1.12	1.62	1.39
2003 official threshold **			
Monthly (pesos)	966	1,182	1,038
Daily (pesos)	32.19	39.38	34.60
\$/day	0.60	0.73	0.64

*The weights are the ratios of the number of respondents belonging to a household size group to total respondents. These weights are applied to the figures presented in Table 3. Only the respondents who answered both MIQ and actual income questions were included.

**Annual per capita. Source: www.nscb.gov.ph/poverty/default.asp. The annual figures are divided by 12, and then by 30 to get the monthly and daily thresholds in pesos, respectively. The daily US dollar threshold uses the prevailing exchange rate in 2003 of Php 54 per US dollar.

4. Concluding remarks

Different concepts of poverty lead to a variety of measures. Most poverty studies make use of income or expenditure exclusively to gauge poverty levels. Multidimensional poverty studies use, besides income or expenditure, additional objective data and/or qualitative information such as perceptions of own well-being. When opinions about the minimum amount of money needed to make ends meet for a given period are available, a measure of subjective poverty can be derived as is done in this study. This variety of concepts and definitions and the related data problems have been the major sources of difficulties in policy design. But as emphasized by Goedhart et al. [1977], the subjective poverty measure is not meant to replace other objective measures. On the contrary they are best viewed as complementing one another.⁵ Indeed, given the measurement and methodological problems that policymakers in developing countries encounter, it may be a good idea to derive other measures, assuming that suitable data are available, to serve as additional guides in the formulation of social policy.

⁵This complementarity is implied in some studies like, for example, Hagenars and de Vos, [1988]. Callan and Nolan [1991] and Hagenars [1986] provide extensive reviews of objective and subjective poverty measures.

References

- Callan, T., and B. Nolan [1991] "Concepts of poverty and the poverty line", *Journal of Economic Surveys* 5(3): 243-261.
- Danziger, S., J. Van der Gaag, M. Taussig, and E. Smolensky [1984] "The direct measurement of welfare levels: how much does it cost to make ends meet?" *Review of Economics and Statistics* 66(5): 500-505.
- Goedhart, T., V. Halberstadt, A. Kapteyn, and B. Van Praag [1977] "The poverty line: concept and measurement", *Journal of Human Resources* 12: 503-520.
- Hagenaars, A. [1986] *The perception of poverty*. North-Holland.
- Hagenaars, A., and K. de Vos [1988] "The definition and measurement of poverty", *Journal of Human Resources* 23(2): 211-221.
- Hagenaars, A., and B. Van Praag [1985] "A synthesis of poverty line definitions", *Review of Income and Wealth* 31: 139-153.
- Kapteyn, A., P. Kooreman, and R. Willemse [1988] "Some methodological issues in the implementation of subjective poverty definitions", *Journal of Human Resources* 23(2): 222-242.
- Mangahas, M. [1995] "Self-rated poverty in the Philippines, 1981-1992", *International Journal of Public Opinion Research* 7(1): 40-52.
- Mangahas, M. [2004] "The SWS survey time series on Philippine poverty and hunger, 1983-present" in: *Papers and proceedings of the 9th National Convention on Statistics*, October 4-5, 2004, Manila, Philippines. (Downloadable from www.nscb.gov.ph/ncs/9thncs/papers/poverty_sws.pdf.)
- Schelzig, K. [2005] *Poverty in the Philippines: income, assets and access*. Manila: Asian Development Bank.
- Social Weather Stations (SWS) [2003] First quarter 2003 social weather report 2003-I, technical details of the survey. Manuscript.
- Van Praag, B., and N. Van der Sar [1988] "Empirical uses of subjective measures of well-being, household cost functions and equivalence scales", *Journal of Human Resources* 23(2): 193-210.
- World Bank [2001] *Philippines poverty assessment*. Volumes 1 and 2. The World Bank.